IN THE SPECIFICATION:

Please amend page 1 of the specification to read as follows:

--CROSS-REFERENCES TO RELATED APPLICATIONS

~~This application is a continuation in part of abandoned U.S. Patent Application Serial No. 09/614,472, filed July 11, 2000, which is a continuation in part application of U.S. Patent Serial No. 09/325,996, filed June 4, 1999, now abandoned, and is also a continuation in part application of co-pending U.S. Patent Application Serial No. and 09/455,299, Filed December 6, 1999.~~

~~U.S. Patent Application Serial No. 09/325,996, of which the present application is a continuation in part, is a continuation in part of expired PCT application US99/00835, filed January 13, 1999, published under publication number WO99/36002, which claims priority from U.S. Patent Application Serial No. 09/007,265, filed January 14, 1998 and which issued on April 3, 2001 as U.S. Patent Number 6,210,429, which is a coninuation in part of U.S. Patent Application Serial No. 08/744,002, filed November 4, 1996, now abandoned. U.S. Patent Application Serial No. 09/325,996, of which the present application is a continuation in part, also claims priority from abandoned U.S. Patent Application Serial No. 08/935,383, filed September 23, 1997, which is a divisional application of U.S. Patent Application Serial No. 08/744,002, filed November 4, 1996, now abandoned. U.S. Patent Application Serial No. 09/325,996, of which the present application is a continuation in part, also claims priority from abandoned U.S. Patent Application Serial No. 09/007,265, filed January 28, 1998 and which issued on April 3, 2001 as U.S. Patent Number 6,210,429, which is a continuation in part of U.S. Patent Application Serial No. 08/744,002, filed November 4, 1996, now abandoned. U.S. Patent Application Serial No. 09/325,996, of which the present application is a continuation in part, also~~

~~claims priority from abandoned U.S. Provisional Patent Application Serial No. 60/088,301, filed June 5, 1998.~~

~~U.S. Patent Application Serial No. 09/455,299, of which the present application is a continuation in part, claims priority from abandoned U.S. Provisional Patent Application Serial No. 60/088,301, filed June 5, 1998, and is also a continuation in part application of abandoned U.S. Patent Application Serial No. 09/325,996, filed June 4, 1999. U.S. Patent Application Serial No. 09/455,299, of which the present application is a continuatino in part, also claims priority from abandoned U.S. Patent Application Serial NO. 09/007,265, filed January 14, 1998 and which issued on April 3, 2001 as U.S. Patent Number 6,210,429, which is a continuation in part of U.S. Patent Application Serial No. 08/744,002, filed November 4, 1996, now abandoned. Patent Application Serial No. 09/455,299, of which the present application is a continuation in part, also claims priority from abandoned U.S. Patent Application Serial No. 08/935,383, filed September 23, 1997, which is a divisional application of U.S. Patent Application Serial No. 08/744,002, filed November 4, 1996, now abandoned. The complete disclosures of the above-referenced applications are herein incorporated by reference.~~

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This application is a continuation in part of U.S. Patent Application Serial No. 09/614,472, filed July 11, 2000 (now abandoned), which is a continuation in part of U.S. Application Serial No. 09/325,996, filed June 4, 1999 (now abandoned), which claims priority to U.S. Provisional Application Serial No. 60/088,301, filed June 5, 1998 (now abandoned) and also claims priority to U.S. Application Serial No. 08/935,383, filed September 23, 1997 (now abandoned), which is a divisional of U.S. Application Serial No. 08/744,002, filed November 4, 1996 (now abandoned). U.S. Application Serial No. 09/325,996 is also a continuation in part of expired PCT application US99/00835, filed January 13, 1999 (published under Publication

number WO99/36002), which claims priority to U.S. Application 09/007,265, filed January 14, 1998 (issued as U.S. Patent 6,210,429 on April 3, 2001), which claims priority to U.S. Application Serial No. 08/744,002, filed November 4, 1996 (now abandoned).

This application is also a continuation in part of co-pending U.S. Application Serial No. 09/455,299, filed December 6, 1999, which is a continuation in part of U.S. Application Serial No. 09/325,966, filed June 4, 1999 (now abandoned), and also claims priority to U.S. Application Serial No. 09/007,265, filed January 14, 1998 (issued as U.S. Patent 6,210,429 on April 3, 2001) and U.S. Provisional Application Serial No. 60/088,301, filed June 5, 1998 (now abandoned).

Please amend page 2 of the specification to read as follows:

--compromising the degree of patency of the main vessel and/or its branches, or the bifurcation point and also limits the ability to insert a branch stent into the side branch if the result of treatment of the main, or main, vessel is suboptimal. Suboptimal results may occur as a result of several mechanisms, such as displacing diseased tissue, plaque shifting, vessel spasm, dissection with or without intimal flaps, thrombosis, and embolism.

~~As described in related U.S. Patent Application Nos. 08/744,022 filed 11/04/96 (now abandoned); 09/007,265 filed 01/14/98, now issued as U.S. Patent Number 6,210,429; 08/935,383 filed 9/23/97 (now abandoned); 60/088,301 filed 06/05/98 (now expired); and PCT Patent Application No. PCT/US99/00835 filed 1/13/99; published under Publication Number WO99/36002 on July 22, 1999, systems have been developed for deploying a main stent in a main vessel at the intersection of a main vessel and a branch vessel. Further, a branch stent may be positioned within a branch vessel through a side opening in the main stent. As will be appreciated, such tasks may be challenging.~~

As described in related U.S. Patent Application Nos. 08/744,002 filed 11/04/96 (now abandoned), 09/007,265 filed 01/14/98, now issued as U.S. Patent Number 6,210,429, 08/935,383 filed 9/23/97 (now abandoned), 60/088,301 filed 06/05/98 (now expired), and PCT Patent Application No. PCT/US99/00835 filed 1/13/99, published under Publication Number WO99/36002 on July 22, 1999, systems have been developed for deploying a main stent in a main vessel at the intersection of a main vessel and a branch vessel. Further, a branch stent may be positioned within a branch vessel through a side opening in the main stent. As will be appreciated, such tasks may be challenging.

For example, management of two guidewires used in introducing and/or orienting stents can pose particular challenges, such as the tendency of the guidewires to twist together. As another example, imaging placement of the stents using low-cost and convenient techniques, such as x-ray or ultrasound imaging, can be difficult using existing methods.

SUMMARY OF THE INVENTION

The invention provides systems and methods for deploying a main vessel stent in a main vessel, with a side hole in the main stent being in registry with the ostium of a branch vessel. The invention also provides techniques for positioning a branch stent in the branch vessel by passing the branch stent through the side hole of the main vessel stent. A variety of catheter designs may be employed to deploy and position the main and branch vessel stents. Such catheters may be used in connection with a pair of guidewires that terminate in the main and branch vessels. These guidewires may be used to facilitate introduction of the catheter, and stents, and/or properly orient the stent within the vessel. For example, the branch vessel guidewire may be used alone or in combination with other elements of the catheter to assist in aligning the side hole of the main stent and/or to deploy a branch vessel stent.

In one particular embodiment, a catheter system utilizes a catheter comprising a catheter body having a distal end, a proximal end, a main vessel guidewire lumen that is adapted to receive a main vessel guidewire and a balloon disposed near the--